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ABSTRACT

The Robert C. Markham Elementary School represents a joint Federal-local effort to educate children of migrant workers. The school provides a specially designed, in-school compensatory program, which views the child as an individual. Markham School is nongraded and emphasizes team teaching approaches. Children enter the school at age five and progress at their own rate. The individualized program has as its core a phased or sequential structure for mastering skills in communication and mathematics; other subjects are taught via the unit method. In addition, there are tutoring services and extended day programs for the students. A vital link to community activities is the school's evening classes in adult education. In the first evaluation of the Markham School (1967-68), a local achievement test was created in order to identify and measure development; the results indicate that the Markham students were on par with the control students. This evaluation, however, did not provide adequate controls for differences in socioeconomic status. The 1968-69 evaluation concluded tentatively that the Markham children were, on the whole, more disadvantaged in terms of home conditions than the control subjects. In addition, several of the tests used were found inadequate. The 1969-70 report concludes that Markham students were, on the average, more disadvantaged than control subjects. However, the relative average achievement of these Markham students appeared to be higher than that of their controls. (Author/JW)

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MARKHAM

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REPORT ON THE EVALUATION OF AN EDUCATIONAL PROGRAM (1968-1970)

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THE SCHOOL BOARD OF BROWARD COUNTY, FLORIDA

BENJAMIN C. WILLIS, SUPERINTENDENT

RESEARCH DEPARTMENT
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INTRODUCTION

The plight of the migrant worker in America has become a national concern. Naturally, this concern is most evident in those areas in which migrant labor is concentrated. In point of fact, however, the term "migrant" is no longer truly appropriate in many parts of the country. The need for laborers has become less of a seasonal thing, and migrant labor camps have become housing projects. In recent years local school districts have participated in federally funded projects designed to provide compensatory education for the children of these workers. The Robert C. Markham Elementary School, located adjacent to the Pompano Migrant Farm Labor Camp in Broward County, represents such a joint federal-local effort. It was designed and staffed to serve as an educational center for the approximately five hundred families who are permanently or semi-permanently housed in that area.

Markham provides educational advancement through a specially designed, in-school compensatory program. Viewing the child as an individual is the paramount concern of this program. It is nongraded in structure and emphasizes team teaching approaches to learning. Children enter the school at age five and progress at their own rate. The program is an individualized one which has as its core a phased or sequential structure for mastering skills in communications and mathematics. Other subjects are taught via the unit method.

Markham expands educational opportunities beyond the normal school day through tutoring services and extended day programs for the students. Markham also acts as a vital link to community activities by conducting evening classes in adult education.

The teachers at Markham were selected with special care. They were chosen by a committee of county educators interested in the future of migrant education.

Those selected spent a full summer establishing good staff relations and attending workshops and seminars on the latest innovations and trends in educational development. Unfortunately, most of the original faculty members were reassigned after the 1969-70 school year in order to implement county-wide teacher desegregation plans.

Evaluation of the "Markham Project" has not waited until the present report. There have been several previous efforts in this direction. The studies were relatively small and, though they did provide a picture of Markham, their primary merit lay in the development of adequate evaluative measures. That is, they served to refine the instruments by means of which the present study was conducted.

The first Markham study (1967-68) initiated the development of a "Local Achievement Test." It was felt that available standardized tests did not provide suitable measures of achievement for the population under consideration. Items for the local test were created to measure those prerequisite skills felt to be important by teachers in predominantly Negro schools. The intent was to identify and measure those skills which teachers believed were necessary for success upon entering their particular grade level.

The results of this study indicated that the achievement of Markham first-year pupils appeared to be on a par with two control schools and below that of a third control school. However, it was felt that this study did not provide adequate controls for differences in socioeconomic status. (For further details see Report Number 8 of the Research Department.)

The 1968-69 Markham Evaluation, while not written up as a full report, did come to some tentative conclusions. Most important of these were:

1. Markham children were on the whole more disadvantaged from the standpoint of home conditions than children in the two control schools selected for this study.
2. Little justification was found for the use of several tests which are commonly used in studies of disadvantaged children.

This study utilized a trained school social worker who interviewed parents in order to secure more objective and consistent socioeconomic data than could be supplied by teachers and school records. The refinement of these procedures was one of the major contributions of this phase of the Markham evaluation. The local achievement test was further modified subsequent to the publication of a county-wide curricular continuum. The validity of this test was established through analyses which included teachers' grades and WISC subtest scores.

Over the years a few small studies have been carried out for primarily "in-house consumption." These include (1) a survey of teacher opinions of the Markham program, and (2) a simple comparison of Markham versus the rest of the county on grade placement as measured by the California Achievement Test. These reports were interesting, but lacked the rigor necessary for serving as a basis for important decision-making.

METHOD

Treatment

In the usual study utilizing experimental and control groups, it is customary to specify the treatment to which all differences can later be attributed. Unfortunately in the case of the Markham Evaluation, this cannot easily be done.

The "treatment" at Markham is really nothing less than the entire program! This does not cause any extreme problems; it simply makes it difficult to identify and isolate weak and strong features or components of the program. From the standpoint of the methods used in this study, the program will be viewed as an undifferentiated totality.

Comparison Schools

Those schools, besides Markham, involved in the evaluation were Sunland Park Elementary and Charles Drew Elementary. These predominantly Negro schools were chosen because it was believed that their pupil populations were representative of the urban (Sunland Park) and "quasi" rural (Drew) Negro communities typical of the county. Standardized test results over the years indicated that these schools tended to be similar to Markham.

Perusal of Table 1 will provide the reader with the essentials of the educational programs of the three schools used in this study. There are some obvious and important differences which should be noted. These differences, however, are only indirectly assessed by this evaluation which focuses upon the total effects of the programs, not their constituent parts.

Rationale

Achievement is a primary goal of any educational program. There are certain other factors which affect achievement, but which are not usually singled out for systematic treatment in most schools. These are the motivational and behavioral aspects of education. Bringing about positive changes in these psycho-behavioral variables is, however, a part of the Markham program. Therefore, an attempt was made to measure these variables as well as achievement.

A truly meaningful examination of the interrelationships among all the variables measured in this study would best be carried out over an extended period of time. Unfortunately, the present situation militates against a

TABLE 1

Essentials of the Educational Program at Three Schools

	Markham	Drew	Sunland Park
Physical Plant	Suites of four rooms that can be divided by sliding curtains	Individual classrooms	Individual classrooms
Administration	Principal and Assistant	Principal and Assistant	Principal only
Organization of Teaching Staff	Teams (4 or 5 teachers and aides in each suite)	Totally self-contained. One teacher per classroom	Primarily self-contained with some limited teaming in each grade
Organization of Students	Each suite has a number of age and grade levels. Placement is aided by reading and math achievement test scores. Assignment to home base group within each suite is random.	Random distribution to teachers in each grade. Grade placement determined by age.	Random distribution to teachers in each grade. Grade placement determined by age and diagnostic tests.
Instruction	Individualized and small group. Science and social studies taught by home base teacher. Heterogeneously grouped for reading and math.	All subjects taught by one classroom teacher with some grouping within the class. Tried teaming for three months but was not successful.	All subjects but one (different for each grade) taught by classroom teacher to small groups within the class. Each grade is grouped heterogeneously for the one subject not taught by homeroom teacher.
Evaluation of Students	Teachers test students at the end of each phase of instruction. There are no report cards. Conferences are held with parents four times per year. There are home visits by teachers.	Teacher made tests whenever necessary. Three report cards per year are given directly to each student. Conferences with parents are held when necessary.	Teacher made tests whenever necessary. Report cards are given directly to parents three times per year. Additional conferences with parents are held when necessary.

longitudinal study of Markham in relation to the control schools. The first court order on desegregation moved teachers around, thus taking from Markham those very teachers trained to help migrant children. The second court order was intended to move children to various schools. Thus, this evaluation was rendered somewhat academic. Even with the delay in the pairing order, the educational program evaluated in this report no longer exists.

It was decided to confine this report to an examination of pupil achievement. A later report will focus upon a longitudinal study of relationships between achievement, psycho-behavioral variables and socioeconomic status. That study will involve the subjects used in this report, but schools will not be contrasted as in this report. The types of questions to be examined in the future study include:

1. Do positive changes in pupil achievement seem to precede or follow positive changes in pupil attitudes and conduct?
2. Do even small differences in socioeconomic conditions influence the achievement and/or conduct of disadvantaged pupils?

The present study constitutes the final evaluation of the Markham program as it was originally conceived and implemented.

Subjects

By the beginning of the 1969-70 school year, Markham had been in operation two years. Since students enter Markham at age five in a preschool-kindergarten, most seven-year-olds would have completed two years of schooling at the end of that year. Only six- and seven-year-olds were used for this evaluation since older children would have attended schools other than Markham. Age rather than grade groupings were used because Markham is a nongraded school. All six- and seven-year-old children in the three schools were located and tested without regard to their "year" or grade level.

Testing Procedures

All seven-year-olds were tested during the first week in November, 1969. Six-year-olds were tested during the latter part of April, 1970. In this way all students were tested after roughly two years of the Markham program (including kindergarten). In effect, this procedure permits something like a cross-validation of the effects of the early childhood education program which existed at Markham.

Each student was tested individually in a session that took approximately thirty minutes in the Fall, and ten to fifteen minutes in April. Each examiner worked with students in all three schools in order to balance for biasing effects due to testers. Eight examiners were used, three of whom were black.

Instrumentation

At the time of the November testing, each student was administered four short tests. Preliminary examination of the results of the November testing indicated sufficient redundancy among the tests to warrant elimination of two of these measures in the April testing. A technically oriented discussion of the testing aspects of this study is appended. A brief nontechnical discussion of the tests reported in this study is given below:

1. Local Achievement Test

   Some short and reliable measure of achievement was necessary. The Local Achievement Test mentioned in the introduction was carefully constructed and validated over a two-year period. It measures skills felt to be important by local educators. The test uses both auditory and visual presentations and has both numerical and verbal types of questions. For example, a student is asked to add pairs of numbers such as four and three, and give the answers verbally. At another point the

student is asked to say aloud a word that is presented to him on a card. It is presented to each student individually and is an untimed test. The possibilities of getting an answer correct by guessing are very limited.

2. Peabody Picture Vocabulary Test

Because of the anticipated possibility that problems of shyness and dialect might limit the performance of some pupils, a non-verbal measure of achievement was also utilized. In other studies of lower socioeconomic students, the Peabody Picture Vocabulary Test has shown itself to be a convenient instrument from the standpoint of administration. Unfortunately, when used in the standard manner, its validity for this type of population is probably less than desirable. The test, however, was modified for the purposes of this study.

The test consists of a series of plates each having pictures of four common objects or situations. For each plate the examiner says one word and the subject must point to the picture that represents that word. With the permission of the publishers, the results of previous item analyses were used to construct a shortened version of the test. Raw scores on this test were interpreted as measures of achievement rather than as a basis for determining IQ scores in terms of a norm group. Since many of these children were nonreaders, an interpretation of these raw score results along the lines of a readiness test might be appropriate.

3. WISC Subtests: Similarities and Picture Arrangement

In the past it has been found that using standardized IQ tests

on this type of population presents difficulties. Nonetheless, an attempt was made to directly assess the aptitudes measured by these subtests without regard to the norm group data. Since local schools were being compared, it was unnecessary to convert raw scores into standardized scale scores. In this way it was felt that widely discussed problems of cultural bias could be avoided. The Similarities subtest requires the student to give ways in which familiar objects are alike. The Picture Arrangement test asks the students to (nonverbally) create a coherent story by rearranging a series of pictures.

In the introduction it was noted that previous studies suggested significant differences in the socioeconomic levels of the three schools. These indications were based upon the local development and use of a Socioeconomic Rating Scale. While there are some good scales already in existence, none make fine enough distinctions for use with this population. That is, at the lower end of the scale they do not distinguish sublevels. The above mentioned local Socioeconomic Rating Scale was, therefore, revised, refined, and used in the present study.

The scale was used by a qualified social worker who interviewed the parent(s) or guardian(s) of each child in the study. The interview was carried out in the student's home, thus enabling the social worker to rate certain physical aspects of the house as well as to secure answers to questions.

In order to ensure consistency of ratings across all subjects and schools on some of the necessarily subjective ratings, only one social worker was used. He was a Negro male with several years of experience as a visiting teacher.

It was found in subsequent statistical analyses that socioeconomic variables were significantly related to all measures of achievement and most

psycho-behavioral variables. These findings are of interest because the range of these variables was necessarily limited in this population. Apparently, even small differences in the socioeconomic standing of these families are to some extent reflected in the performance of their children. A previous study had cast some doubt upon this assumption. A more adequate discussion of these matters, and the bearing of the Markham studies upon them, will be undertaken in another report.

RESULTS AND DISCUSSION

Socioeconomic Differences Between Schools

Factor analyses of the socioeconomic data permitted a reduction of the scale to fifteen indices of socioeconomic level. Principal component procedures were used to produce three sets of unrotated factor scores for each subject. These factor scores were used to control for socioeconomic differences between schools in the major comparisons of this study. These scores are basically functional and are difficult to interpret. Tables 2 and 3 were therefore constructed for descriptive purposes.

Table 2 gives a comparison of schools on all fifteen socioeconomic variables. While any one of these variables may not itself point to an important difference between the schools, a look at the total chart does indicate general differences. On the first seven indices Markham families answered positively an average of about eight percent fewer times than did families from Sunland Park and about fifteen percent fewer times than did families from Charles Drew. The first five categories refer to the presence of printed matter in the home. These items have obvious educational implications. The rating of dialect showed that Markham parents were

TABLE 2

Comparison of Socioeconomic Variables

Variable	Markham (N = 135) Number	(%)	Drew (N = 291) Number	(%)	Sunland Park (N = 207) Number	(%)
Newspaper in the Home	23	(17.1)	49	(16.9)	38	(18.4)
Magazines in the Home	43	(31.9)	178	(61.2)	105	(50.7)
Books in the Home	66	(48.9)	181	(62.2)	119	(57.5)
Dictionary in the Home	80	(59.3)	230	(79.1)	157	(75.9)
Encyclopedia in the Home	15	(11.2)	35	(12.0)	34	(16.5)
Telephone in the Home	47	(34.9)	180	(61.9)	75	(36.3)
Pictures in the Home	50	(37.1)	165	(56.7)	85	(41.1)
	Deep	Moderate None	Deep	Moderate None	Deep	Moderate None
Dialect	37(27.4)	93(68.8) 5(3.7)	17(5.8)	268(92.0) 6(2.2)	16(7.7)	174(84.0) 17(8.3)
	Poor	Fair Good	Poor	Fair Good	Poor	Fair Good
Shopping Strategy	57(42.2)	70(51.8) 8(5.9)	45(15.4)	222(76.2) 24(8.4)	21(10.2)	144(69.5) 42(20.3
Home Rating						
Very High		3(2.2)		3(1.0)		4(1.9)
High		4(2.9)		21(7.2)		10(4.8)
Fair		39(28.8)		135(46.3)		74(35.7)
Low		66(48.8)		126(43.2)		109(52.6)
Very Low		23(17.0)		6(2.0)		10(4.8)
Mean Education level of the parent or guardian (in years) with the most schooling		8.34		9.26		9.04

TABLE 2 (Continued)

Variable	Markham (N=135) Number	(%)	Drew (N=291) Number	(%)	Sunland Park (N=207) Number	(%)
'er Capita Income (Weekly)	$14.71		$20.93		$19.85	
'er Capita Rooms In Home	0.67		0.95		0.89	
'arent Rating of the School						
Very Poor	0	(0)	0	(0)	0	(0)
Poor	0	(0)	0	(0)	0	(0)
Fair	2	(1.4)	9	(3.0)	7	(3.3)
Good	80	(59.2)	206	(70.7)	120	(57.9)
Very Good	53	(39.2)	75	(25.7)	80	(38.6)
'arent Rating of the Amount of Teacher Interest in Students						
Very Poor	0	(0)	0	(0)	0	(0)
Poor	0	(0)	0	(0)	0	(0)
Fair	1	(0.7)	8	(2.7)	7	(3.3)
Good	80	(59.2)	193	(66.3)	105	(50.7)
Very Good	54	(40.0)	90	(30.9)	95	(45.8)

more likely to display nonstandard speech patterns. This factor could lead to difficulties in communication on the part of their children.

The item on shopping strategy was designed to estimate a "practical sense" in managing family resources. A poor "strategy" would be to shop exclusively in small local stores where prices are high. A "good strategy" would be to read advertisements and shop in a variety of stores to maximize values. This item is, of course, dependent upon vagaries of location and the availability of transportation which are beyond the control of some of these families. The lower rating of Markham families indicates the likelihood that they pay more for essentials than more favorably situated families.

The home rating represents a global general impression of living conditions. The educational level represents the average grade attained by the parent or guardian who completed the most schooling. Markham is below both other schools on these comparisons.

Estimated weekly income on a per-capita basis was lowest among Markham families. The average number of rooms per person in the home was also lowest at Markham, indicating that Markham children tended to have less living space and privacy.

Parents were asked to rate their child's school and the amount of interest they felt teachers took in their children. Parents responded positively to these items at all three schools.

A more general picture of relative standing is presented in Table 3. This table gives the rank order of the three schools on each variable and does not take into account the magnitude of the differences between schools. It is fairly obvious from the fact that Markham ranks third in twelve of the fifteen variables, that these socioeconomic variables must be taken into account in making a fair evaluation of the Markham Program.

TABLE 3

Rank Order of Three Schools
on
Fifteen Socioeconomic Variables
(#3 = Lowest)

Variable	Markham	Drew	Sunland Park
Newspaper in Home	2	3	1
Magazine in Home	3	1	2
Books in Home	3	1	2
Dictionary in Home	3	1	2
Encyclopedia in Home	3	2	1
Telephone in Home	3	1	2
Pictures in Home	3	1	2
Dialect	3	1	2
Shopping Strategy	3	2	1
Home Rating	3	1	2
Educational Level of Parents	3	1	2
Per Capita Income	3	1	2
Per Capita Rooms in the Home	3	1	2
Parent Rating of the School	1	3	2
Amount of Interest in Student by Teacher	1	2	3

Explanation of Analysis

When making comparisons among Markham and the other schools, it is desirable to use statistical techniques to control for the above mentioned socioeconomic differences. Analysis of Covariance was the method of control used in this study. MANOVA, one of a family of computer programs in wide use throughout the country, was utilized. In this case, application of the method permitted the schools to be statistically equated on socioeconomic measures. The socioeconomic variables used to equate the groups are called "covariates." The point of the method is to reduce the effects of the covariates so as to secure a better test of the effect of the treatment itself, i.e., the Markham Program. The mean (average) scores reported in the tables have been adjusted for the three socioeconomic covariates used in this study. Since Markham was lower on most socioeconomic variables, the adjustments served to raise Markham scores and reduce the scores of the control schools.

Comparisons

For each achievement measure one statistical comparison is reported. This comparison is between Markham and the average of Sunland Park and Charles Drew. Each of these is reported separately for the age groups in Tables 4 and 5.

Both groups were tested after Markham pupils had completed two years of education. Six-year-olds were tested at the end of the first grade or year. Seven-year-olds were tested at the beginning of the second grade or year. It should be remembered that most Markham pupils participated in that school's kindergarten program. The data on seven-year-olds represent an evaluation of Markham's preschool and first-year program for the 1968-69 school year. The analyses involving six-year-olds represent a replication of the study for the 1969-70 school year.

It is probably best to ignore the raw score means reported in Tables 4 and 5. These means represent the average number of correctly answered questions on the short tests used in the study. The tests of statistical significance probably reflect differences which, in terms of the number of pupils tested and the length of the tests, are of practical as well as statistical significance.

In a technical sense these tests of significance must be referred to hypothetical populations of pupils such as these who could "potentially" undergo similar "treatments" (participate in these school programs). In a less technical sense, as was mentioned above, the tests of significance are likely to reflect practical differences in the relative performance of pupils in the three schools. The performance is relative to socioeconomic differences which are beyond the control of school officials.

Inspection of Table 4 shows that Markham seven-year-olds scored significantly higher than their controls on the modified Peabody Test. It is conventional to use the .05 level as a criterion of statistical significance. Table 4 shows that differences favoring Markham on the Local Achievement Test and Picture Arrangement Test were not far from this criterion of significance. The general patterns of the data in Table 4 convey the impression that participation in the Markham program positively benefitted the achievement of seven-year-olds.

Inspection of Table 5 indicates that Markham six-year-olds scored significantly higher on both the Local Achievement and Peabody Tests. The findings reported in the two tables are, therefore, essentially consistent. Whatever differences may exist between the age groups may be plausibly explained in terms of factors such as "summer slump," improvements in the Markham program, or differences in the forms of the tests.

TABLE 4

Postmeasure Scores Adjusted for Three Covariates
(7 year olds)

	Similarities	Picture Arrangement	Local Achievement Test	Peabody
Control (N = 239)	20.68	17.38	6.61	9.51
Markham (N = 74)	20.96	18.48	8.31	10.52
F	0.68	1.78	2.67	6.25
Comparison (△)				
P Less Than (+)	.410	.182	.103	.013 *

* Statistically significant difference

(△) Comparison is between Markham and the average of Charles Drew and Sunland Park.

(+) The probability is less than this percent that the above difference in mean scores would happen by chance alone.

TABLE 5

Postmeasure Scores Adjusted for Three Covariates
(6 year olds)

	Local Achievement Test	Peabody
Control (N = 259)	9.26	8.65
Markham (N = 61)	13.01	9.69
F	13.43	7.96
Comparison (△)		
P Less Than (+)	.001 *	.005 *

* Statistically significant difference

(△) Comparison is between Markham and the average of Charles Drew and Sunland Park.

(+) The probability is less than this percent that the above difference in mean scores would happen by chance alone.

Discussion

This study was carefully delineated and conducted with due regard to the classical problems involved in evaluating disadvantaged subjects. The effect tested was the general impact of the first two years of the Markham program. Pupils in the study were not "contaminated" by previous participation in other programs.

Although ideal control-experimental studies cannot be conducted in actual school situations, great care went into identifying and controlling differences in the socioeconomic characteristics of pupils. These differences were critical because the Markham program was designed to serve severely disadvantaged populations. It was found that the Markham pupils tended to be drawn from a more disadvantaged population than were their controls.

The problem of securing reliable and valid measures of achievement was conscientiously attacked. Each child was tested individually by qualified testers under appropriate conditions. The tests used were developed and refined through a series of studies carried out over a three-year period.

Comparisons between schools reflected trends favorable to Markham. It would appear that continuation of the original Markham program could be justified on the basis of these preliminary findings. Unfortunately, the program which these children underwent no longer exists. Further, it has become impossible to determine whether relative gains would have been increased or sustained had these children remained in the original program for six years.

CONCLUSIONS

1. Markham six- and seven-year-old pupils were, on the average, more disadvantaged than pupils in the two control schools.

2. The relative average achievement of these Markham pupils appeared to be higher than that of their controls.

RECOMMENDATION

It is recommended that no further evaluations of local compensatory education programs be undertaken until county officials develop new long-range plans appropriate to the changes brought about by pupil and teacher desegregation. The subjects used in this study will be re-tested this year because the information already obtained concerning them may produce findings of practical importance. No new study will be conducted during the 1970-71 school year.

APPENDIX

APPENDIX: TESTS

A good deal of experimentation with tests was carried out over a three-year period in conjunction with this study. The basic goal of the experimentation was to develop a short and economical battery of tests relevant to the purposes of the Markham program.

Tests administered and analyzed included the full WISC, portions of the ITPA, the Bender-Gestalt, House-Tree-Person, Detroit IQ and selected Piaget type tests. A complete report of the scoring and analyses of these tests would be rather lengthy. For example, Bender-Gestalt items were scored separately for rotations, perseveration, integration, etc. Further analyses of these data may be of general interest to other researchers concerned with the measurement problems entailed by studies such as these.

Pertinent facts about the tests actually used in this study are briefly summarized below. Additional information can be provided upon request.

The Local Achievement Test

This test was originally intended to serve as a criterion referenced measure. Two versions of the test were made; one for use at the first-year level and another for the second-year. Internal consistency reliability (alpha) coefficients for both measures were consistently above .9 for all groups tested. Correlations of both tests with teacher grades ranged in the seventies. This test consistently correlated the highest with other tests used in various experimental studies. These results led to the conclusion that the Local Achievement Test provided the best single measure of achievement used in this study. It was further concluded that many children in the population tested were functioning at an essentially unidimensional level of proficiency in a measurement sense.

For example, the types of number skills which most have mastered are highly related to reading readiness skills. They have not yet reached a stage where specific aptitudes differentiate a range of somewhat independent areas of performance.

Peabody

Two experimental versions of a shortened test were used in the seven-year-old testing. The same key words were used but the arrangement of the plates was altered. Perseveration and guessing led to expected differences in the statistical characteristics of the same items on the two versions of the test. Multiple choice tests are particularly vulnerable to such effects when used with disadvantaged populations.

The two versions of the test were administered on a random basis. Mean scores were not significantly different for the two forms. Alpha coefficients were .51 and .61. The different forms were not separately analyzed in contrasts between schools. Only one form of the test was used with six-year-olds. Coefficient alpha for this test was .56.

It was concluded that the test was sufficiently reliable for the purposes of this study. Interpreted as a measure of word recognition vocabulary, it was believed to provide an appropriate measure of achievement. Correlations with the Local Achievement Test ranged in the high forties.

WISC Subtests

Internal consistency reliability coefficients were .66 for Similarities and .76 for Picture Arrangement. Correlations of these tests with the Local Achievement and modified Peabody ranged between .3 and .6. The results of several factor analyses indicated sufficient redundancy among these tests to warrant

dropping these measures. Thus, these scores are only available for seven-year-olds. It is interesting to note that the factor analyses of data obtained from the administration of several test batteries, as well as data obtained from teacher ratings, indicated essentially two factors: achievement and conduct. Test scores as well as most teacher ratings loaded on one factor. A few of the teacher ratings which dealt with pupils' overt conduct loaded on a second factor.